

Archaetnos Culture & Cultural
Resource Consultants
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**A REPORT ON A CULTURAL HERITAGE IMPACT ASSESSMENT FOR THE
PROPOSED PHOTOVOLTIC POWER PLANT AND EMP AMENDMENT FOR THE
NORTHAM PLATINUM ZONDEREINDE MINE CLOSE TO NORTHAM,
NORTHWEST PROVINCE**

For:

GREEN EDGE ENVIRONMENTAL CONSULTANTS

REPORT NO.: AE01315V

By:

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Please note that the South African Heritage Resources Agency (SAHRA) or one of its subsidiary bodies needs to comment on this report.

It is the client's responsibility to do the submission via the SAHRIS System on the SAHRA website.

Clients are advised not to proceed with any action before receiving the necessary comments from SAHRA.

DISCLAIMER

Although all possible care is taken to identify all sites of cultural importance during the survey of study areas, the nature of archaeological and historical sites are as such that it always is possible that hidden or subterranean sites could be overlooked during the study. Archaetnos and its personnel will not be held liable for such oversights or for costs incurred as a result thereof.

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SUMMARY

Archaetnos cc was requested by Green Edge Environmental Consulting to conduct a cultural heritage impact assessment for the proposed photovoltaic plant and EMP amendment of the Northam Platinum Zondereinde Mine. This is close to the town of Northam in the Northwest Province.

A survey of the available literature was undertaken in order to obtain background information regarding the area. This was followed by the field survey which was conducted according to generally accepted HIA practices, aimed at locating all possible objects, sites and features of cultural significance in the area of the proposed development.

All sites, objects features and structures identified were to be documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of a Global Positioning System (GPS). The information was added to photographs and the description in order to facilitate the identification of each locality.

During the survey five sites of cultural heritage significance were located. These are discussed in the report and suitable management measures are being proposed. Mitigation measures indicated should be implemented after which the development may continue.

It should be noted however that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Care should therefore be taken when the development commences further that if any of these are discovered, a qualified archaeologist be called in to investigate.

It is also important to take cognizance that it is the client's responsibility to do the submission of this report via the SAHRIS System on the SAHRA website. No work on site may commence before receiving the necessary comments from SAHRA.

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1. INTRODUCTION

Archaetnos cc was requested by Green Edge Environmental Consulting to conduct a cultural heritage impact assessment for the proposed photovoltaic plant and EMP amendment of the Northam Platinum Zondereinde Mine. This is close to the town of Northam in the Northwest Province (Figure 1).

The client indicated the area to be surveyed. The field survey was confined to this area.

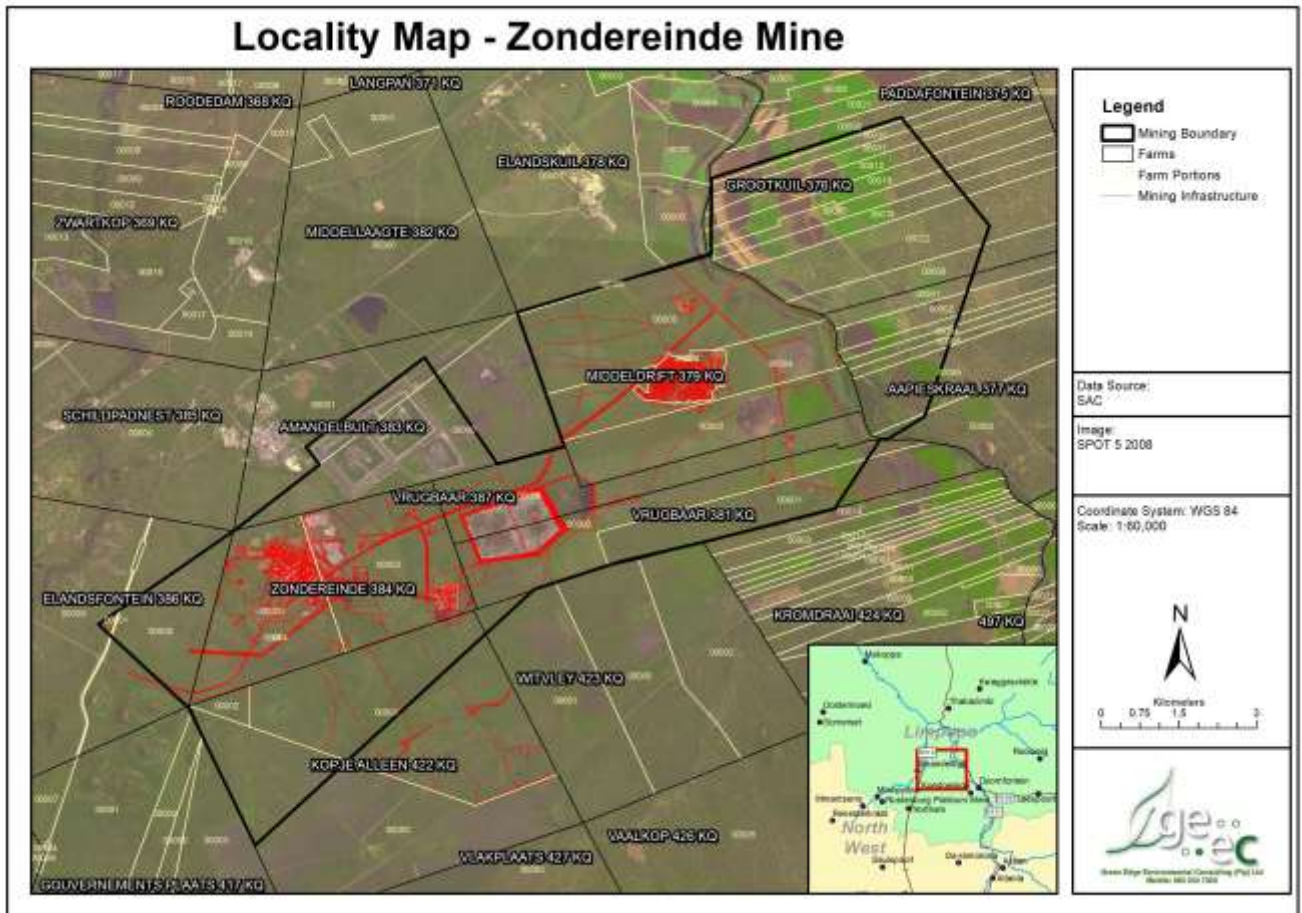


Figure 1 Location of the surveyed site in the Northwest Province.

2. TERMS OF REFERENCE

The Terms of Reference for the survey were to:

1. Identify objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the property (see Appendix A).
2. Study background information on the area to be developed.

3. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).
4. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions.
5. Recommend suitable mitigation measures to minimize possible negative impacts on the cultural resources by the proposed development.
6. Review applicable legislative requirements.

3. CONDITIONS & ASSUMPTIONS

The following conditions and assumptions have a direct bearing on the survey and the resulting report:

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity (Appendix A). These include all sites, structure and artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development. Graves and cemeteries are included in this.
2. The significance of the sites, structures and artifacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects.
3. Cultural significance is site-specific and relates to the content and context of the site. Sites regarded as having low cultural significance have already been recorded in full and require no further mitigation. Sites with medium cultural significance may or may not require mitigation depending on other factors such as the significance of impact on the site. Sites with a high cultural significance require further mitigation (see Appendix C).
4. The latitude and longitude of any archaeological or historical site or feature, is to be treated as sensitive information by the developer and should not be disclosed to members of the public.
5. All recommendations are made with full cognizance of the relevant legislation.
6. It has to be mentioned that it is almost impossible to locate all the cultural resources in a given area, as it will be very time consuming. Developers should however note that the report should make it clear how to handle any other finds that might occur. In this case almost the entire area is covered by crops growing high and therefore negatively affecting archaeological visibility.

4. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

4.1 The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The national estate (see Appendix D) includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Archaeological and paleontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment only looks at archaeological resources. The different phases during the HIA process are described in Appendix E. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length

- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or paleontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- a. destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- b. destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated) before exhumation can take place. Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

4.2 The National Environmental Management Act

This act (Act 107 of 1998) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

5. THE INTERNATIONAL FINANCE CORPORATIONS' PERFORMANCE STANDARD FOR CULTURAL HERITAGE

This standard recognizes the importance of cultural heritage for current and future generations. It aims to ensure that clients protect cultural heritage in the course of their project activities.

This is done by clients abiding to the law and having heritage surveys done in order to identify and protect cultural heritage resources via field studies and the documentation of such resources. These need to be done by competent professionals (e.g. archaeologists and cultural historians). Possible chance finds, encountered during the project development, also needs to be managed by not disturbing it and by having it assessed by professionals.

Impacts on the cultural heritage should be minimized. This include the possible maintenance of such sites in situ, or when impossible, the restoration of the functionality of the cultural heritage in a different location. When cultural historical and archaeological artifacts and structures need to be removed is should be done by professionals and by abiding to the applicable legislation. The removal of cultural heritage resources may however only be considered if there are no technically or financially feasible alternatives. In considering the removal of cultural resources, it should be outweighed by the benefits of the overall project to the effected communities. Again professionals should carry out the work and adhere to the best available techniques.

Consultation with affected communities should be engaged in. This entails that access to such communities should be granted to their cultural heritage if this is applicable. Compensation for the loss of cultural heritage should only be given in extra-ordinary circumstances.

Critical cultural heritage may not be impacted on. Professionals should be used to advise on the assessment and protection thereof. Utilization of cultural heritage resources should always be done in consultation with the effected communities in order to be consistent with their customs and traditions and to come to agreements with relation to possible equitable sharing of benefits from commercialization.

6. METHODOLOGY

6.1 Survey of literature

A survey of literature was undertaken in order to obtain background information regarding the area. Sources consulted in this regard are indicated in the bibliography.

6.2 Field survey

The survey was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed development. One regularly looks a bit wider than the demarcated area, as the surrounding context needs to be taken into consideration.

If required, the location/position of any site was determined by means of a Global Positioning System (GPS)¹, while photographs were also taken where needed. The survey was undertaken by doing a physical survey via off-road vehicle and on foot (Figure 2). The size of the area that was surveyed is approximately 8 000 Ha and the survey took four eighteen hours to complete.



Figure 2 GPS track of the surveyed area². North reference is to the top.

¹ A Garmin Oregon 550 with an accuracy factor of a few meters.

² Two people surveys the area, but with only one GPS. Therefore some areas may seem to have not been surveyed, but that is not the case. Two-way radios were used to keep in contact.

6.3 Oral histories

People from local communities are interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

6.4 Documentation

All sites, objects features and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of the Global Positioning System (GPS). The information was added to the description in order to facilitate the identification of each locality.

6.5 Evaluation of Heritage sites

The evaluation of heritage sites is done by giving a field rating of each (see Appendix C) using the following criteria:

- The unique nature of a site
- The integrity of the archaeological deposit
- The wider historic, archaeological and geographic context of the site
- The location of the site in relation to other similar sites or features
- The depth of the archaeological deposit (when it can be determined or is known)
- The preservation condition of the site
- Uniqueness of the site and
- Potential to answer present research questions.

7. DESCRIPTION OF THE AREA

A very large portion of the area on which the survey was carried out, has been disturbed. This is to a large extent the result of recent human activities, mainly agriculture and mining (Figure 3-11). Current mining infrastructure is to be found mostly in the central part of the surveyed area, but some structures are also found elsewhere. These include offices and other buildings, the plant, slimes dam and even the mine village.

Apart from the agricultural fields, a large area that was surveyed consists of rehabilitated mine soil. Here pioneer plant species such as grassland and sickle bush dominate. In certain of these areas the vegetation cover is quite high, making archaeological visibility difficult. However one would not expect to find archaeological sites in rehabilitated landscapes. In other areas the archaeological visibility was better due to the plant growth being less dense.

The topography of the area is fairly even. Only three small rocky hills are present in the surveyed area. These are found in the south-east and all three were surveyed.

A few non-perennial streams as well as the Crocodile River (to the north-east) do also drain the surveyed area. Large mountains are to be found outside of and to the north-east and the Bier Spruit, a perennial river, to the south-west, but outside of the surveyed area.



Figure 3 Some of the mine buildings in the surveyed area.



Figure 4 The remains of mining activities in the surveyed area.



Figure 5 Rehabilitated mining area showing pioneer plant species.



Figure 6 View of the large slimes dam in the surveyed area.



Figure 7 Some of the crops found in the surveyed area.



Figure 8 A ploughed field in the surveyed area.



Figure 9 General view of the rehabilitated area with mining infrastructure in the background.



Figure 10 Long grass was found in certain areas on the mine.

8. HISTORICAL CONTEXT

Five sites of cultural heritage significance were located in the surveyed area. In order to understand these as well as possible finds that could be unearthed during construction activities, it is necessary to give a background regarding the different phases of human history.

8.1 Stone Age

The Stone Age is the period in human history when lithic material was mainly used to produce tools (Coertze & Coertze 1996: 293). In South Africa the Stone Age can be divided in three periods. It is, however, important to note that dates are relative and only provide a broad framework for interpretation. The division for the Stone Age according to Korsman & Meyer (1999: 93-94) is as follows:

Early Stone Age (ESA) 2 million – 150 000 years ago
Middle Stone Age (MSA) 150 000 – 30 000 years ago
Late Stone Age (LSA) 40 000 years ago – 1850 - A.D.

The closest known Stone Age site in the vicinity of Northam is a number of Late Stone Age sites in the Magaliesberg Mountains, which lies approximately 100 km to the south. A rock art site is known to the northeast. Rock engravings are found to the south and east of Rustenburg (the latter lying about 100 km to the south of the surveyed area). These date back to the Late Stone Age (Bergh 1999: 4-5).

No natural shelter exists in the surveyed area, but the mountains to the north-east may have sheltered Stone Age people. The low hills in and around the surveyed area also may have provided shelter. The area probably provided good grazing and the abundance of water make it very likely that Stone Age people may have utilized the surroundings for hunting purposes. One may therefore find Stone Age material out of context lying around, although none was identified during the survey.

8.2 Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal artifacts (Coertze & Coertze 1996: 346). In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.
Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however, indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.
Middle Iron Age (MIA) 900 – 1300 A.D.
Late Iron Age (LIA) 1300 – 1840 A.D.

Many Late Iron Age sites have been identified in the area around the towns of Rustenburg, Koster and Groot Marico as well as in the Waterberg Mountains. This however excludes the surveyed area (Bergh 1999: 7-8). During earlier times the area was inhabited by Tswana groups, namely the Fokeng and Kwena. These people fled from Mzilikazi during the Difaquane, but later on returned (Bergh 1999: 9-11).

Three Iron Age sites were found during the survey. This coupled with a suitable environment proves that these people utilized this area as it would have provided good grazing and water for livestock. There also is ample building material.

8.3 Historical Age

The historical age started with the first recorded oral histories in the area. It includes the moving into the area of people that were able to read and write. This era is sometimes called the Colonial era or the recent past.

Due to factors such as population growth and a decrease in mortality rates, more people inhabited the country during the recent historical past. Therefore and because less time has passed, much more cultural heritage resources from this era have been left on the landscape. It is important to note that all cultural resources older than 60 years are potentially regarded as part of the heritage and that detailed studies are needed in order to determine whether these indeed have cultural significance. Factors to be considered include aesthetic, scientific, cultural and religious value of such resources.

Early travelers have moved through this part of the Northwest Province. The first of these was the expedition of Dr. Andrew Cowan and Lt. Donovan in 1808. They were followed by Robert Scoon and William McLuckie in 1827 and 1829 and Dr. Robert Moffat and Reverend James Archbell in 1829 (Bergh 1999: 12, 117-119).

Hume again moved through this area in 1830 followed by the expedition of Andrew Geddes Bain in 1831. After them came Dr. Andrew Smith in 1835 (Bergh 1999: 13, 120-121). Hume again moved through the area with Scoon in 1835. In 1836 William Cornwallis Harris visited the area. The well-known explorer Dr. David Livingston passed through this area in 1847 (Bergh 1999: 13, 119-122).

In 1837 the Voortrekkers also moved through the Swartruggens area (Bergh 1999: 11). During this year a Voortrekker commando moved out against Mzilikazi and was engaged in a battle with his impi to the north of Swartruggens. The area surveyed was inhabited by white settlers between 1841 and 1850 (Bergh 1999: 14-15).

Historical structures, such as farm houses and infrastructure relating to these times, may therefore be found in the area. It also is possible to find graves from this era.

9. DISCUSSION OF SITES FOUND DURING THE SURVEY

As indicated five sites of cultural heritage importance were identified. It dates to the Late Iron Age and Historical Age. As indicated, there always is a possibility that some sites may have been missed. In such a case, where such sites are found, it should be handled in accordance with the recommendations in this report.

9.1 Site 1 – graves

This is a site containing at least 16 graves, but since the grass cover is very dense it was not possible to get an accurate count (Figure 11). Two of the graves have granite headstones and dressing and all the others are stone packed without headstones.

Only two surnames were identified, being Mmabache and Tshwene. The dates of death of these two individuals are respectively 1970 and 1978. All the others have no information and therefore have an unknown date of death. This means that two of the three categories of graves were identified, being those without a date of death (called unknown graves) and those younger than 60 years. Unknown graves are handled similarly to heritage graves (older than 60 years).

GPS: 24°48.329'S
27°25.323'E

Graves are always regarded as having a **high** cultural significance. The field rating thereof is Local Grade III B. It should be included in the heritage register, but may be mitigated.

Two possibilities exist. The first option would be to fence the graves in and have a management plan drafted for the sustainable preservation thereof. This should be written by a heritage expert. This usually is done when the graves are in no danger of being damaged, but where there will be a secondary impact due to the activities.

The second option is to exhume the mortal remains and then to have it relocated. This usually is done when the graves are in the area to be directly affected by the activities. For this a specific procedure should be followed which includes social consultation. For graves younger than 60 years only an undertaker is needed. For those older than 60 years and unknown graves an undertaker and archaeologist is needed. Permits should be obtained from the Burial Grounds and Graves unit of SAHRA. This procedure is quite lengthy and involves social consultation.

It always is better to implement the first option, if possible. In this case there will not be a direct impact and therefore option 1 is recommended.



Figure 11 Some of the graves at site no. 1.

Impact Rating without mitigation:

Pre-construction – None

Construction/ Operational/ Decommissioning and closure –

Extent – Low/Medium 2

Duration – Low/Medium 2

Intensity – Negative M -6

Probability – Medium 3

Significance – 30 – Low

Impact Rating with mitigation:

Pre-construction – None

Construction/ Operational/ Decommissioning and closure –

Extent – Low/Medium 2

Duration – Low 1

Intensity – Positive L +6

Probability – Low 1

Significance – 9 – Low

9.2 Site 2 – graves

This is a site containing at least 14 graves (Figure 12). These are however in a very bad state of preservation and one therefore expect that there may be more. One of the graves have a cement headstone and dressing whilst the other three are stone packed without headstones.

Only one surname was partially identified, being Phall... The date of death for this individual is 1982. All the others have an unknown date of death. Again this means that two of the three of the categories of graves were identified, being those without a date of death (called unknown graves) and those younger than 60 years. Unknown graves are handled similarly to heritage graves (older than 60 years).

GPS: 24°47.373'S
27°24.953'E

Graves are always regarded as having a **high** cultural significance. The field rating thereof is Local Grade III B. It should be included in the heritage register, but may be mitigated.

Two possibilities exist. The first option would be to fence the graves in and have a management plan drafted for the sustainable preservation thereof. This should be written by a heritage expert. This usually is done when the graves are in no danger of being damaged, but where there will be a secondary impact due to the activities.

The second option is to exhume the mortal remains and then to have it relocated. This usually is done when the graves are in the area to be directly affected by the activities. For this a specific procedure should be followed which includes social consultation. For graves younger than 60 years only an undertaker is needed. For those older than 60 years and unknown graves an undertaker and archaeologist is needed. Permits should be obtained from the Burial Grounds and Graves unit of SAHRA. This procedure is quite lengthy and involves social consultation.

It always is better to implement the first option, if possible. In this case there will not be a direct impact on the site and therefore option 1 is recommended.



Figure 12 One of the graves at site no. 2.

Impact Rating without mitigation:

Pre-construction – None

Construction/ Operational/ Decommissioning and closure –

Extent – Low/Medium 2

Duration – Low/Medium 2

Intensity – Negative M -6

Probability – Medium 3

Significance – 30 – Low

Impact Rating with mitigation:

Pre-construction – None

Construction/ Operational/ Decommissioning and closure –

Extent – Low/Medium 2

Duration – Low 1

Intensity – Positive L +6

Probability – Low 1

Significance – 9 – Low

9.3 Site 3 – Late Iron Age site

This is a large site consisting of a wide variety of stone walling (Figure 13). The site is found at the foot of and to the north and east of one of the stone hills within the mine boundary. At least 8 different circular shaped walls with a diameter of between 8 and 20 m were counted. The height of the walls differ between 0,40 and 1,20 m.

The very dense grass however made it impossible to do an accurate count. After completion of the field work the area was checked on Google and it seems that a few more stone walls than those identified in the field, are present.

GPS: 24°51.387'S
27°19.425'E

24°51.386'S
27°19.398'E



Figure 13 Some of the stone walling at site no. 3.

As these kind of stone walling is well-known in the vicinity and these are not the only ones found on the property, it receives a **medium** cultural significance. It receives a field rating of Local Grade III B. It may therefore be mitigated if needed. Mitigation would include test excavations and drawing a site plan. However, the site will not be

impacted on directly. It is therefore rather suggested that the area be excluded from any development and that the site be preserved in situ.

Impact Rating without mitigation:

Pre-construction – None

Construction/ Operational/ Decommissioning and closure –

Extent – Low/Medium 2

Duration – Low 1

Intensity – Negative L -2

Probability – Low 1

Significance – 5 – Low

Impact Rating with mitigation:

Pre-construction – None

Construction/ Operational/ Decommissioning and closure –

Extent – Low/Medium 2

Duration – Low 1

Intensity – Positive L +2

Probability – Low 1

Significance – 5 – Low

9.4 Site 4 – Late Iron Age site

This site is an even larger than the first one and also consists of a wide variety of stone walling (Figure 14). The site is found on and around another one of the stone hills within the mine boundary. At least 18 different circular shaped walls were identified, but again the extremely dense vegetation made an accurate count impossible. The diameter of the walling varies between 7 and 20 m and the height between 0,40 and 1,20 m.

After completion of the field work the area was checked on Google and it seems that a few more stone walls than those identified in the field, are present. A reservoir on the hill most likely has damaged some of the walling on site.

GPS: 24°50.429'S
27°20.848'E

24°50.491'S
27°20.888'E

24°50.536'S
27°20.987'E

24°50.557'S
27°20.889'E

24°50.515'S
27°20.874'E



Figure 14 Some of the stone walling at site no. 4.

As this kind of stone walling is well-known in the vicinity and these are not the only ones found on the property, it receives a **medium** cultural significance. The site also has been damaged by the erection of a water reservoir on the hill. It receives a field rating of Local Grade III B. It may therefore be mitigated if needed. Mitigation would include test excavations and drawing a site plan. However, the site will not be impacted on directly, although it is very close to the location of the proposed photovoltaic power plant. It is therefore rather suggested that the area be excluded from any development and that the site be preserved in situ.

Impact Rating without mitigation:

Pre-construction – None

Construction/ Operational/ Decommissioning and closure –

Extent – Low/Medium 2

Duration – Low 1

Intensity – Negative M -6
Probability – Medium 3

Significance – 27 – Low

Impact Rating with mitigation:

Pre-construction – None

Construction/ Operational/ Decommissioning and closure –

Extent – Low/Medium 2

Duration – Low 1

Intensity – Positive M/L +4

Probability – M/L 2

Significance – 14 – Low

9.5 Site 5 – Late Iron Age site

This is the largest of the three Iron Age sites found on the property. Again it consists of a wide variety of stone walling (Figure 15). The site is found on and around one of the stone hills within the mine boundary. At least 13 different circular and elongated shaped walls were identified, but again the density of the vegetation made an accurate count impossible. The circles have a diameter of between 3 and 30 m and the walls a height of between 0,40 and 1,20 m. The one rectangular structure has sides of 10 x 30 m.

As was the case with the other sites, the area was checked on Google after completion of the field work. Again it seems that a few more stone walls than those identified in the field, are present.

GPS: 24°51.186'S
27°20.184'E

24°51.210'S
27°20.215'E

24°51.224'S
27°20.108'E

24°51.182'S
27°20.073'E

24°51.206'S
27°20.021'E



Figure 15 Some of the stone walling at site no. 5.

Although this kind of stone walling is well-known in the vicinity and this particular site is one of three found on the property, it is the most complete thereof. For this reason it is regarded as having a **high** cultural significance. It receives a field rating of Local Grade III A. It may therefore not be mitigated and should be included in the heritage register. The site will not be impacted on directly. It should therefore also be excluded from any future development on the mine and be preserved in situ. A heritage management plan is needed to ensure the sustainable preservation of the site.

Impact Rating without mitigation:

Pre-construction – None

Construction/ Operational/ Decommissioning and closure –

Extent – Low/Medium 2

Duration – Low 1

Intensity – Negative L -2

Probability – Low 1

Significance – 5 – Low

Impact Rating with mitigation:

Pre-construction – None

Construction/ Operational/ Decommissioning and closure –

Extent – Low/Medium 2

Duration – Low 1

Intensity – Positive L +2

Probability – L 1

Significance – 5 – Low

10. CONCLUSION AND RECOMMENDATIONS

As indicated five sites of cultural importance was identified during the survey. None of these will directly be impacted on by the current developments at the mine (Figure 16-18). The survey of the indicated area was completed successfully.



Figure 16 This Google image indicates the placement of the photovoltaic power plant at the mine (grey trapezium). North reference is to the top.



Figure 17 Google image indicating the sites identified during the survey. North reference is to the top.

The following is recommended:

- The proposed development may continue, but only after implementation of the mitigation measures recommended in this report.
- For both grave sites (sites no. 1 and 2) the same is recommended. Graves are always regarded as having a **high** cultural significance.
- Although two possibilities exist, there will be no direct impact on these two sites. It therefore is recommended that the graves be fenced in and that a management plan drafted for the sustainable preservation thereof. This should be written by a heritage expert.
- The recommendations for sites 3 and 4 (Late Iron Age stone walling) are similar. As this kind of stone walling is well-known in the vicinity and these are not the only ones found on the property, it receives a **medium** cultural significance. Site 4 also has been damaged by the erection of a water reservoir on the hill.
- Both sites may be mitigated if needed. Mitigation would include test excavations and drawing a site plan. However, since the sites will not be impacted on directly (even with site 4 being very close to the location of the

proposed photovoltaic power plant), it is rather suggested that the areas be excluded from any development and that it be preserved in situ.

- Site 5 is similar to sites 3 and 4, but the recommendations thereof differ as the site is the most complete of the three. It therefore is regarded as having a **high** cultural significance.
- The site may therefore not be mitigated and should be included in the heritage register. The site will not be impacted on directly. It should therefore also be excluded from any future development on the mine and be preserved in situ. A heritage management plan is needed to ensure the sustainable preservation of the site.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence. It should be indicated that another grave yard was identified on the 1:50 000 map of the area, but since the gate to this particular farm was locked, access could not be gained.



Figure 18 Zoomed-in image of the three Late Iron Age sites. The approximate boundaries of the sites are marked in white. North reference is to the top.

11. REFERENCES

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APPENDIX A

DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B

DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:

- Historic value: Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
- Aesthetic value: Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
- Scientific value: Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
- Social value: Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- Rarity: Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.
- Representivity: Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C

SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Low A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

Heritage significance:

- Grade I Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III Other heritage resources of local importance and therefore worthy of conservation

Field ratings:

- i. National Grade I significance should be managed as part of the national estate
- ii. Provincial Grade II significance should be managed as part of the provincial estate
- iii. Local Grade IIIA should be included in the heritage register and not be mitigated (high significance)
- iv. Local Grade IIIB should be included in the heritage register and may be mitigated (high/ medium significance)
- v. General protection A (IV A) site should be mitigated before destruction (high/ medium significance)
- vi. General protection B (IV B) site should be recorded before destruction (medium significance)
- vii. General protection C (IV C) phase 1 is seen as sufficient recording and it may be demolished (low significance)

APPENDIX D

PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – grade I and II

Protected areas - an area surrounding a heritage site

Provisional protection – for a maximum period of two years

Heritage registers – listing grades II and III

Heritage areas – areas with more than one heritage site included

Heritage objects – e.g. archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states

Structures – older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E

HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or scoping phase – establishment of the scope of the project and terms of reference.
2. Baseline assessment – establishment of a broad framework of the potential heritage of an area.
3. Phase I impact assessment – identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – if there is no likelihood that any sites will be impacted.
5. Phase II mitigation or rescue – planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III management plan – for rare cases where sites are so important that development cannot be allowed.